

## A circular professional engineer seal for the State of Montana. The outer ring contains the text "MONTANA" at the top and "PROFESSIONAL ENGINEER" at the bottom, separated by two stars. The inner circle contains the name "CRAIG JENNESKENS" and the license number "No. 12098PE". A blue ink signature is written across the seal.



ABBREVIATIONS

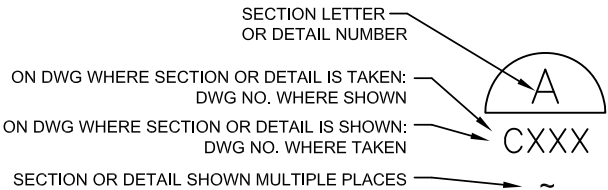
Ø	DIAMETER	MAX	MAXIMUM
⊙	AT	MC	MECHANICAL COUPLING
AB	ANCHOR BOLT, AGGREGATE BASE, ABANDONED	MDT	MONTANA DEPT. OF TRANSPORTATION
AC	ASBESTOS CEMENT	MECH	MECHANICAL
AFF	ABOVE FINISHED FLOOR	MEP	MILITARY EQUIPMENT PARKING
AL	ALUMINUM	MFR	MANUFACTURER
ANC	ANCHOR	MH	MANHOLE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	MIN	MINIMUM, MINUTE
APPROX	APPROXIMATELY	MJ	MECHANICAL JOINT
AWWA	AMERICAN WATER WORKS ASSOCIATION	MPWSS	MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS
BF	BLIND FLANGE, BUTTERFLY	N	NORTH
BFF	BELOW FINISH FLOOR	N.I.C.	NOT IN CONTRACT
BFV	BUTTERFLY VALVE	NO.	NUMBER
BLDG	BUILDING	NPT	NATIONAL PIPE THREAD
BM	BENCH MARK	NTS	NOT TO SCALE
BOC	BACK OF CURB	OAL	OVERALL LENGTH
BV	BALL VALVE	OC	ON CENTER
BVC	BEGIN VERTICAL CURVE	OD	OUTSIDE DIAMETER
C	CHANNEL, CENTER	OF	OUTSIDE FACE, OVERFLOW
CI	CAST IRON, CURB INLET	OHPWR	OVERHEAD POWER
CIP	CAST IRON PIPE, CAST-IN-PLACE	P	PROPOSED
CIPP	CURED-IN-PLACE PIPE	PC	POINT OF CURVATURE
C , CL	CENTERLINE	PE	PLAIN END
CLR	CLEAR	PG	PERFORMANCE GRADE
CMP	CORRUGATED METAL PIPE	PL	PROPERTY LINE, PLATE
CO	CLEANOUT	PI	POINT OF INTERSECTION
CP	CONTROL POINT	POV	PRIVATELY OWNED VEHICLE
CPE	CORRUGATED POLYETHYLENE PIPE	PROP	PROPERTY, PROPOSED
CPLG	COUPLING	PSI	POUNDS PER SQUARE INCH
CPVC	CHLORINATED POLYVINYL CHLORIDE	PT	POINT OF TANGENCY
CSP	CORRUGATED STEEL PIPE	PVC	POLYVINYL CHLORIDE
CV	CHECK VALVE	PVI	POINT OF VERTICAL INTERSECTION
CY	CUBIC YARDS	PWR	UNDERGROUND POWER
DEPT	DEPARTMENT	R	RADIUS
DH	DRILL HOLE (SOIL BORING)	RCB	REINFORCED CONCRETE BOX
DI	DUCTILE IRON, DRAIN INLET	RCP	REINFORCED CONCRETE PIPE
DIA	DIAMETER	ROW	RIGHT-OF-WAY
DIMJ	DUCTILE IRON MECHANICAL JOINT	RPA	ROBERT PECCIA & ASSOCIATES
DIP	DUCTILE IRON PIPE	RPC	RED PLASTIC CAP
DR	DRAIN, DIMENSION RATIO	RR	RAILROAD
DWG	DRAWING	RT	RIGHT
EA	EACH	RW	RIGHT-OF-WAY, RACEWAY
EFF	EFFLUENT	R/W	RIGHT-OF-WAY
ELEV	ELEVATION	S	SLOPE
EOP	EDGE OF PAVEMENT	SCH	SCHEDULE
EVC	END VERTICAL CURVE	SD	STORM DRAIN
EW	EACH WAY	SDI	STORM DRAIN INLET
EXT	EXTERIOR	SDR	STANDARD DIMENSION RATIO
E,EXST,EXIST	EXISTING	SECT	SECTION
FAB	FABRICATION	SF/SQFT	SQUARE FOOT/FEET
FC	FLEXIBLE COUPLING	SS	SANITARY SEWER, STAINLESS STEEL
FCA	FLANGED COUPLING ADAPTER	STA	STATION
FDN	FOUNDATION	STD	STANDARD
FETS	FLARED END TERMINAL SECTION	STL	STEEL, STEEL PIPE
FF	FINISHED FLOOR	T	TELEPHONE
FG	FINISH GRADE	TBC	TOP BACK OF CURB
FH	FIRE HYDRANT	TBM	TEMPORARY BENCH MARK
FL	FLOOR, FLANGE, FLOW LINE	TEMP	TEMPERATURE, TEMPORARY
FM	FORCE MAIN	THD	THREADED
FOC	FACE OF CURB, FACE OF CONCRETE	TOW	TOP OF WALL
FPT	FEMALE PIPE THREAD	TP	TEST PIT
FTG	FOOTING	TV	CABLE TELEVISION
FT	FOOT, FEET	TYP	TYPICAL
G	GAS	UG	UNDERGROUND
GA	GAUGE	UGP	UNDERGROUND POWER
GALV	GALVANIZED	UPC	UNIFORM PLUMBING CODE
GPM	GALLONS PER MINUTE	V	VENT, VOLT, VALVE
GSP	GALVANIZED STEEL PIPE	VC	VOICE/COMMUNICATIONS
GV	GATE VALVE	VERT	VERTICAL
HD	HEAVY DUTY; HOT-DIPPED	VLV	VALVE
HDR	HEADER	W	WATER, WEST
HDPE	HIGH DENSITY POLYETHYLENE PIPE	W/	WITH
HGT	HEIGHT	W/O	WITHOUT
HT	HEIGHT	WS	WATER SURFACE, WATER STOP
HYD	HYDRANT	WV	WATER VALVE
IBC	INTERNATIONAL BUILDING CODE	WWF	WELDED WIRE FABRIC
ID	INSIDE DIAMETER	X	USED AS A VARIABLE
IN	INCH	YD	YARD
INFL	INFLUENT		
INT	INTERIOR, INTERSECTION		
INV	INVERT		
L	ANGLE		
LB(S)	POUND(S)		
LF	LINEAL FOOT, LINEAR FEET		
LT	LEFT		

LEGEND

DESCRIPTION	
TELEPHONE	PH
UNDERGROUND ELECTRICAL	UG
OVERHEAD POWER	OH
GAS	GAS
WATER	W
GAS METER	GM
VALVES	WV
STREET LIGHT	SL
POWER POLE	PP
ELECTRICAL SERVICE METER	SM
TRANSFORMER	TF
TELEPHONE PEDESTAL	TP
TELEPHONE BOX	PB
YARD HYDRANT	YH
WELL	W
WATER VAULT/MANHOLE	W
CONTROL POINT	CP

GENERAL NOTES

- GENERAL NOTES, ABBREVIATIONS, AND LEGEND FOR SHEETS INVOLVING CIVIL WORK ARE SHOWN ON THIS SHEET. THIS IS A STANDARD LEGEND SHEET, THEREFORE SOME SYMBOLS AND ABBREVIATIONS MAY NOT APPEAR ON THIS SHEET AND SOME MAY NOT BE UTILIZED ON THIS PROJECT. CONTACT THE ENGINEER FOR ABBREVIATIONS AND SYMBOLS NOT LISTED.
- UNLESS SPECIFICALLY SHOWN ON THESE DRAWINGS, ALL WORK WILL CONFORM TO MPWSS, LATEST EDITION.
- WITH 48 HOURS NOTICE, BASE LINE POINTS OR OTHER CRITICAL HORIZONTAL CONTROL MAY BE OBTAINED FROM THE ENGINEER IN A NORTHING AND EASTING FORMAT CORRESPONDING WITH CONTROL POINTS. AUTOCAD BASE MAP WILL BE PROVIDED TO CONTRACTOR TO ASSIST IN LOCATING PERTINENT POINTS FOR CONSTRUCTION.
- EXISTING UNDERGROUND INSTALLATIONS AND PRIVATE UTILITIES SHOWN ARE FROM THE BEST INFORMATION AVAILABLE. ACCURACY OF SUCH INFORMATION IS NOT GUARANTEED AND SHALL BE VERIFIED BY THE CONTRACTOR. SERVICE LINES (IRRIGATION, DATA, WATER, POWER, COMMUNICATIONS, GAS, STEAM, AND SEWER) MAY NOT BE STRAIGHT (DEPTH NOT EVEN) OR AS INDICATED ON THE PLANS. THE CONTRACTOR SHALL NOTIFY EACH UTILITY COMPANY BEFORE EXCAVATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL UTILITY LOCATES.
- CONTRACTOR SHALL FIELD VERIFY LINE AND GRADE OF EXISTING CONNECTIONS WELL IN ADVANCE OF MAKING THE CONNECTION.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PERMITS REQUIRED FOR THEIR CONSTRUCTION ACTIVITIES.
- STORM DRAIN, SANITARY SEWER, AND WATER LINES SHALL BE SLOPED AT A UNIFORM GRADE BETWEEN ELEVATIONS SHOWN.
- ALL EXISTING UTILITIES THAT ARE TO BE REMOVED SHALL BE CAPPED AND PLUGGED AT THEIR CUT TERMINATION POINTS.
- FIRE DEPARTMENT ACCESS MUST BE PROVIDED TO ALL BUILDINGS DURING CONSTRUCTION.
- THE CONTRACTOR SHALL SUPPLY ALL NECESSARY FITTINGS, COUPLINGS, AND SPOOL PIECES FOR CONNECTING NEW UTILITIES TO EXISTING UTILITIES. THESE PLANS MAY NOT SHOW ALL REQUIRED COMPONENTS FOR MAKING THE CONNECTIONS.



DETAIL AND SECTION CALLOUT

ENLARGED FOR CLARITY



DATE	BY	APPR.	REVISION	SYM

C. JENNESKENS, PE	MAY 2016
DESIGNED BY	DATE
G. LESOFSKI	15207
DRAWN BY	PROJECT NO.
K. JENSEN, PE	C-102
CHECKED BY	FILE

PROJECT TITLE

**Jocko River Trout Hatchery Raceway Replacement**

Arlee, Montana

SHEET TITLE

**NOTES, LEGEND AND ABBREVIATIONS**

SHEET

**C102**

OF



F:\altered\15207 - Jocko River Hatchery\Jocko - C103\CAAD\Sheets\C-103.dwg May 10, 2016



SYM	REVISION	BY	APPR	DATE

C. JENNESKENS, PE	MAY 2016
DESIGNED BY	DATE
G. LESOFSKI	15207
DRAWN BY	PROJECT NO.
K. JENSEN, PE	C-103
CHECKED BY	FILE

PROJECT TITLE  
**Jocko River Trout Hatchery  
Raceway Replacement**  
Arlee, Montana

SHEET TITLE  
**DEMOLITION PLAN**

SHEET  
**C103**  
OF



FWP Jocko Trout Hatchery RPA Final Control Point Table									
Montana State Plane Coordinates (2500) NAD83(2011) International Foot Definition    NAVD 88 Elevations									
Point	Latitude	Longitude	Ellip Ht	Northing	Easting	Elevaton	Description	Convergence Angle	CSF
1*	47°10'09.46033"	-114°04'52.87346"	2985.39	1097558.726	830283.035	3033.91	Set 5/8" rebar with red plastice cap, marked "RPA CONTROL"	-3°21'05"	0.99925406
2	47°10'08.96550"	-114°04'56.73965"	2985.69	1097524.315	830013.593	3034.22	Set 5/8" rebar with red plastice cap, marked "RPA CONTROL"	-3°21'07"	0.99925404
3	47°10'11.66139"	-114°04'58.13473"	2980.38	1097802.458	829933.387	3028.91	Set 5/8" rebar with red plastice cap, marked "RPA CONTROL"	-3°21'08"	0.99925433

**Metadata**  
Survey Performed by Robert Peccia and Associates - November 2015 Trimble R8-3 GPS  
Control primarily established with GPS RTK methods:  
Held OPUS return for point number 1  
Montana State Plane Coordinates (2500) NAD83(2011) Epoch 2010.000 International Foot Definition based on OPUS solutions  
NAVD 88 Elevations were computed using Geoid12A  
NAVD 88 Elevations - Held OPUS solution  
CSF - Combined Scale Factor  
\* OPUS solution point



- CONSTRUCTION NOTES:**
- 1 THE NEW RACEWAYS ARE EACH 2'-0" NARROWER THAN THE EXISTING (RESULTING IN THE BANK BEING 4'-0" NARROWER). LOCATE AND CONSTRUCT NEW RACEWAYS SUCH THAT THE CENTERLINE OF EACH BANK IS IN THE SAME LOCATION AS THE EXISTING BANK CENTERLINE.
  - 2 REPLACE EXISTING TEMPORARY VINYL PIPE SPOOL INSIDE VAULT WITH 8" STEEL PIPE (APPROX. 1'-8" LONG) AND COUPLINGS.
  3. TOPSOIL AND SEED ALL DISTURBED AREAS, OTHER THAN AREAS SHOWN AS GRAVEL OR PAVEMENT.

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DATE									
BY	APPR.								
REVISION									
SYM									

C. JENNESKENS, PE  
DESIGNED BY

G. LESOFSKI  
DRAWN BY

K. JENSEN, PE  
CHECKED BY

MAY 2016  
DATE

16207  
PROJECT NO.

C-104  
FILE

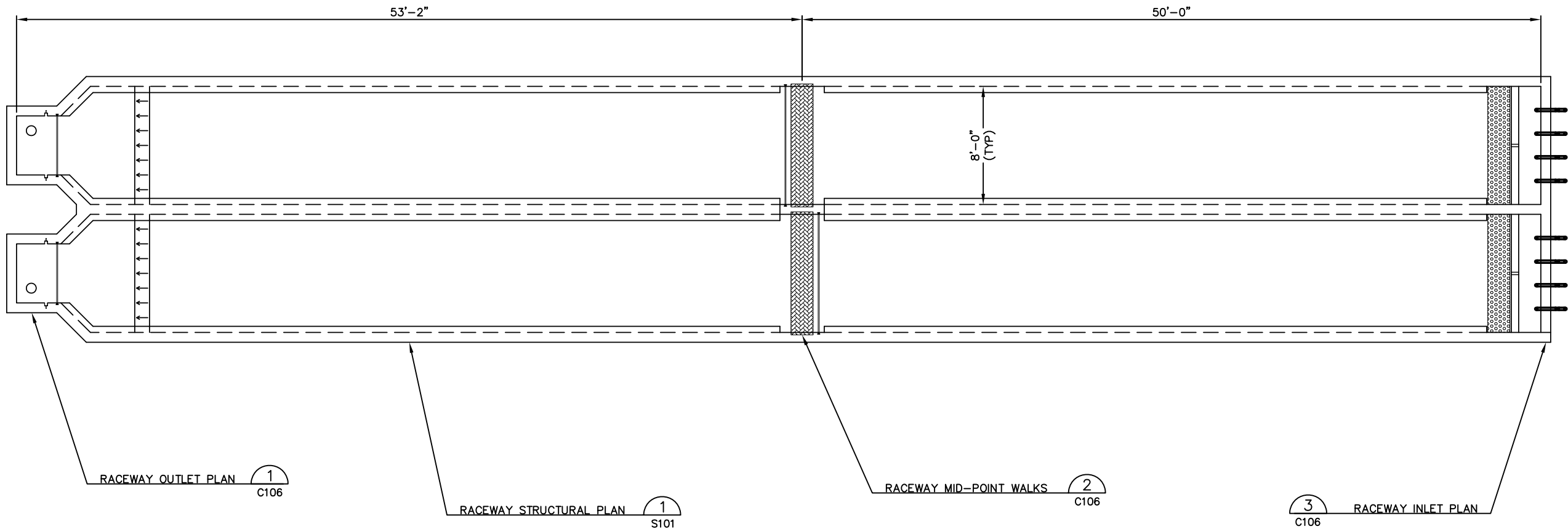
PROJECT TITLE  
**Jocko River Trout Hatchery  
Raceway Replacement**  
Arlee, Montana

SHEET TITLE  
**SITE PLAN**

SHEET  
**C104**  
OF



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**NEW RACEWAYS PLAN** 1 C104

SCALE: 1"=4'-0"

VERIFY SCALES  
BAR SCALE IS ONE INCH  
ON ORIGINAL DRAWING.  
0 1"  
IF NOT ONE INCH ON  
THIS SHEET, ADJUST  
SCALES ACCORDINGLY.

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SYM	REVISION	BY	APPR.	DATE

C. JENNESKENS, PE	MAY 2016
DESIGNED BY	DATE
G. LESOFSKI	15207
DRAWN BY	PROJECT NO.
K. JENSEN, PE	C-105
CHECKED BY	FILE

PROJECT TITLE  
**Jocko River Trout Hatchery  
Raceway Replacement**  
*Arlee, Montana*

SHEET TITLE  
**NEW RACEWAYS**

SHEET  
**C105**  
OF